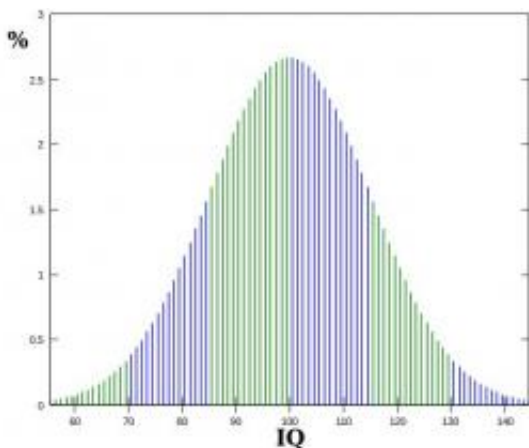


# Flame retardant exposure linked to lower IQs

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The IQs of a large enough population are calculated so that they conform to a normal distribution with a mean of 100 and a standard deviation of 15. Image: Wikipedia.

A new study involving Simon Fraser University researchers has found that prenatal exposure to flame retardants can be significantly linked to lower IQs and greater hyperactivity in five-year old children. The findings are published online today in the journal *Environmental Health Perspectives*.

The researchers found that a 10-fold increase in PBDE concentrations in early pregnancy, when the fetal brain is developing, was associated with a 4.5 IQ decrement, which is comparable with the impact of environmental lead exposure.

SFU health sciences professor Bruce Lanphear is part of the research team that measured the levels of flame retardants, or polybrominated diphenyl ethers, (PBDEs) in 309 U.S. women at 16 weeks of pregnancy, and followed their children to the age of five.

Researchers say their results confirm earlier studies that found PBDEs, which are routinely found in pregnant women and children, may be developmental neurotoxicants.

PBDEs have been widely used as flame retardants in furniture, carpet padding, car seats and other consumer products over the past three decades. While most items containing PBDEs were removed voluntarily from the market a decade ago, some are still in commerce and others persist in the environment and human bodies. Nearly all homes and offices still contain some PBDEs.

"The results from this and other observational human studies support efforts to reduce Penta-BDE exposures, especially for pregnant women and young children," says Lanphear. "Unfortunately, [brominated flame retardants](#) are persistent and North Americans are likely exposed to higher PBDE levels than people from other parts of the world. Because of this it is likely to take decades for the PBDE levels in our population to be reduced to current European or Asian levels."

The United Nations Environment Program (UNEP) added two of three existing commercial PBDE formulas to the list of banned Persistent Organic Pollutants (POPs) due to concerns over toxicity in wildlife and mammals in 2009. While PBDEs were voluntarily withdrawn from the U.S. market in 2004, products manufactured before then may still contain PBDEs, which can continue to be released into the environment and accumulate via indoor dust.

The latest research highlights the need to reduce inadvertent exposure to

PBDEs in the home and office environment (e.g., via dust), and in diet (e.g., via fish or meat products), to avert potential developmental neurotoxicity in [pregnant women](#) and [young children](#).

Lanphear says additional research is needed to highlight the impact of PBDE exposure on the developing brain. He also notes that it is important to investigate related chemicals and other [flame retardants](#) used to replace PBDEs.

**More information:** Paper: [ehp.niehs.nih.gov/1307562/](http://ehp.niehs.nih.gov/1307562/)

Provided by Simon Fraser University

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